

WHAT IS CLAIMED IS:

1. An image processing system comprising:
  - an image input unit having a plurality of image input channels;
  - a parallel image data processing unit that receives image data
  - 5 from the image input channels of the image input unit, divides the image data received into a plurality of divided data, each divided data including data in a number that is less than a predetermined number, and processes in parallel the divided image data; and
  - a sequential image data processing unit that sequentially
  - 10 processes the divided image data output from the image parallel data processing unit while switching the divided image data for the image input channels.
2. The image processing system according to claim 1, wherein the
- 15 sequential image data processing unit carries out error diffusion processing between a target pixel and other pixels in pixel line of the target pixel.
3. The image processing system according to claim 2, further
- 20 comprising:
  - a storage unit that stores error data obtained by the error diffusion processing in compliance with the number of image data processed in parallel,
  - wherein the sequential image data processing unit retrieves the
  - 25 error data stored for every input channel from the storage unit when

performing the error diffusion processing.

4. The image processing system according to claim 1, further comprising:

5 a blue noise processing unit that carries out blue noise processing;

a blue noise data reading position designating unit that points a blue noise data reading position by the blue noise processing unit in parallel; and

10 a reading position storage unit that stores the blue noise reading position for each image data to be processed in parallel,

wherein the reading position storage unit stores the blue noise data reading position that corresponds to relevant image data at the time of blue-noise-processing the image data to be processed in

15 parallel.

5. An image forming system comprising:

an image processing system including

20 an image input unit having a plurality of image input channels;

a parallel image data processing unit that receives image data from the image input channels of the image input unit, divides the image data received into a plurality of divided data, each divided data including data in a number that is less than a

25 predetermined number, and processes in parallel the divided image

data; and

a sequential image data processing unit that sequentially processes and outputs the divided image data output from the image parallel data processing unit while switching the divided image data for the image input channels; and

an image forming unit that forms visible images on a recording medium using the image data output by the image processing system.

6. An image processing method comprising:

10 receiving image data from a plurality of image input channels;

dividing the image data received into a plurality of divided data, each divided data including data in a number that is less than a predetermined number;

processing in parallel the divided image data; and

15 sequentially processing the divided image data processed at the processing while switching the divided image data for the image input channels.

7. The image processing method according to claim 6, wherein the sequentially processing includes carrying out error diffusion processing between a target pixel and other pixels in pixel line of the target pixel.

8. The image processing method according to claim 7, further comprising storing error data obtained by the error diffusion processing in compliance with the number of image data processed in parallel,

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wherein the sequentially processing includes retrieving the error data stored for every input channel when performing the error diffusion processing.

- 5     9.     The image processing method according to claim 6, further comprising:

performing blue noise processing;

designating a blue noise data reading position for performing the blue noise processing; and

- 10         storing the blue noise reading position, for each image data to be processed in parallel, that corresponds to relevant image data at the time of blue-noise-processing the image data to be processed in parallel.

- 15     10.     A computer program that makes a computer execute:

receiving image data from a plurality of image input channels;

dividing the image data received into a plurality of divided data, each divided data including data in a number that is less than a predetermined number;

- 20         processing in parallel the divided image data; and

sequentially processing the divided image data processed at the processing while switching the divided image data for the image input channels.

- 25     11.     The computer program according to claim 10, wherein the

sequentially processing includes carrying out error diffusion processing between a target pixel and other pixels in pixel line of the target pixel.

12. The computer program according to claim 11, further makes the  
5 computer execute storing error data obtained by the error diffusion processing in compliance with the number of image data processed in parallel,

wherein the sequentially processing includes retrieving the error data stored for every input channel when performing the error diffusion  
10 processing.

13. The computer program according to claim 10, further makes the computer execute:

performing blue noise processing;  
15 designating a blue noise data reading position for performing the blue noise processing; and

storing the blue noise reading position, for each image data to be processed in parallel, that corresponds to relevant image data at the time of blue-noise-processing the image data to be processed in  
20 parallel.

14. A computer-readable recording medium that stores a computer program that makes a computer execute:

receiving image data from a plurality of image input channels;  
25 dividing the image data received into a plurality of divided data,

each divided data including data in a number that is less than a predetermined number;

processing in parallel the divided image data; and

sequentially processing the divided image data processed at the

- 5 processing while switching the divided image data for the image input channels.